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57. **Proposed b J. C. NAGLE, M. A., M. C. E., Professor of Civil Engineering, Agricultural and Mechanical College of Texas, College Station, Texas.**

Over the intersection of two inclined planes slides a cord of uniform mass throughout its length. Find the equation to the path described by its center of gravity.

AVERAGE AND PROBABILITY.

54. **Proposed by HENRY HEATON, M. Sc., Atlantic, Iowa.**

A man is at the center of a circle whose diameter is equal to three of his steps. If each step is taken in a perfectly random direction, what is the probability, (1), that he will step outside the circle at the second step, and, (2), that he will step outside at the third step ?

55. **Proposed by G. B. M. ZERR, A. M., Ph. D., Texarkana, Arkansas.**

It has been clear for 15 consecutive days, what is the chance of the 16th day being cloudy ?

56. **Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics in Drury College, Springfield, Missouri.**

Find the chance that the center of gravity of a triangle lies inside the triangle formed by three points taken at random within the triangle. [From *Williamson's Integral Calculus*.]

NOTES.

NOTE ON MR. BECHER'S ARTICLE IN OCTOBER NUMBER OF MONTHLY.

BY J. R. BALDWIN, DAVENPORT, IOWA.

In Franklin A. Becher's article for the October number, (Vol. III), I notice he says, "Multiplying an infinite number by another gives us infinity of a higher power, or dividing gives us infinity of a lower power."

How does he reconcile the latter part of this statement with Wallis's expression for the value of π,

$$\tfrac{1}{2}\pi=\frac{2.2.4.4.6.6.8.8\ \ldots\ldots}{1.3.3.5.5.7.7.9\ \ldots\ldots}\ ?$$

In this expression, we have the quotient of two infinite numbers equal to a finite number.

Mr. Lilley's criticism (MONTHLY, Vol. III., No. 3.) of the solution IV. (MONTHLY, Vol. II., page 190) is undoubtedly valid, but the statement that "Todhunter failed to produce a direct proof of it" is probably incorrect. The theorem is given by Todhunter (Euclid, page 316) and in a note at the bottom of page 317 he says, "For the history of this theorem see *Lady's and Gentlemen's Diary* for 1859, page 88." If any reader of the MONTHLY has the Diary for that year I should be very much pleased to see the history of this theorem published in the MONTHLY. Todhunter's proof of the theorem is indirect, but that does not argue that he was unable to discover a direct proof. I remember that many